

3/PRTS

10/526467
DT01 Rec'd PCT/PTC 03 MAR 2005

Agent's Ref.: P5090PCT

GARMENT FOR WOMEN

The invention relates to a garment for women and in particular one designed to
5 cover the bosom. Such a garment can be an item of swimwear, *i.e.* a bikini top or of
lingerie, *i.e.* a brassiere.

It has long been realised that the straps associated with such a garment are
inconvenient. In the case of tanning, the shoulder straps and the back straps leave
10 untanned areas which are regarded as unattractive. In the case of lingerie, women
often wear strapless and/or backless dresses where again, brassiere straps are
undesirable. Numerous ideas have been offered to address this problem. Some
solutions rely on the use of transparent straps. Other solutions rely on the use of
adhesives. In reality, the adhesive is presented as a tape the two sides of which are
15 covered by an acrylic, polyester or like adhesive.

For example, one prior art solution which requires the use of dermal adhesive tape
located on the inside surface of each cup of a strapless, backless brassiere is
disclosed in US 2003/0073378.

20

In US 5755611 a self-supporting breast cup is disclosed which requires the use of a
dermal adhesive tape located below the breast-covering region of the cup.

US 6257951 discloses a reusable backless strapless brassiere comprising an
25 underwire, a light-weight aluminium layer and a rubber foam layer. The aluminium
layer allows the cups to be moulded to the contours of the wearer. The foam is

bonded to the skin using dermal adhesive tape which is applied horizontally across the bottom of the brassiere and attached to the rib cage of the wearer.

In reality there may be problems associated with the use of dermal adhesive tape in so much as it does not simply work well or well enough. For example, having two surfaces to adhere to introduces the possibility of dirt or other detritus becoming adhered to both of the to-be-adhered surfaces of the tape, thereby reducing the effectiveness of the adhesion of both surfaces and providing a weaker or less secure bond between wearer and garment. Moreover, the dermal adhesive tape must be re-applied every time the garment is used which is time-consuming and requires the storage of spare tape. Also, whilst some dermal adhesive tapes are hypoallergenic, some are not and these can irritate the skin and cause dermatological problems.

It is an object of this invention to provide a garment which can be worn by a wearer to cover and/or support the breasts which has no visible support means (*i.e.* is backless and strapless) and is reliable and comfortable in use. It is a further non-exclusive object of the invention to provide such a garment which can be worn a plurality of times and which does not necessitate re-applying adhesive each time the garment is to be worn.

According to a first aspect of the invention there is provided a strapless garment to cover the bosom area of a woman, the garment comprising a length of material having two ends, breast receiving cups being present between the ends, a layer of hypoallergenic adhesive being permanently secured at either end of the material

which, in use, will contact or is contactable with the body of the wearer, the outer surface of the layer of the adhesive being covered by a releasable cover.

Preferably the garment may be removed and reapplied a plurality of times on or
5 over, say, a plurality of distinct occasions.

A second aspect of the invention provides a strapless garment to cover the bosom area of a woman, the garment comprising a length of material having two ends, breast receiving cups being present between the ends, a layer of adhesive being
10 permanently secured at either end of the material which, in use, will contact or is contactable with the body of the wearer, the outer surface of the layer of the adhesive being covered by a releasable cover, the adhesive being arranged to allow the garment to be removed and re-applied to the wearer a plurality of times.

15 Preferably the adhesive is a gel. Preferably the adhesive is a hydrogel. The gel may be based on a polymer, e.g. acrylic, polyester, silicone or the like. In a preferred embodiment, the hydrogel is based on an organic polymer plasticised with a polyhydric alcohol (e.g. glycerol), the polymer may be derived from a monomeric mixture comprising acrylic acid, glycolvinylether and a cross-linking agent or, for
20 example a sodium salt of 2-acrylamido-2-methylpropane sulphonic acid (NaAMPS) or an analogue and a cross-linking species. The adhesive may be presented on one side of a membrane, the other side of the membrane carrying a garment-adherent adhesive through which the adhesive is permanently secured to the garment. Alternatively, or additionally, the adhesive may be mounted on a substrate which is
25 sewn, stitched or otherwise secured to the ends of the garment.

The garment may be of any suitable type. Preferably, in the case of a bikini, the material preferably comprises a laminate of two outer layers of heat cured material separated by a layer of foam material and part of the laminate has been moulded to form the breast receiving cups. Preferably the laminate comprises two outer layers
5 of spandex or a polyester modified spandex known as LYCRA ®.

Most preferably, the two outer layers are sealed at their edges to envelop the edges of the foam layer whereby the foam layer is not visible to the wearer. The resultant one piece sealed garment is eminently suitable as a bikini top.
10

In another embodiment the garment is fabricated from a material suitable for use as an item of lingerie; for example lace may be present.

In another aspect, the invention provides a package for a garment as hereinbefore
15 defined, the package comprising a container in which the garment is presentable, the container having hanging means at one end by which the container may be suspended from a support, the container being in two separable parts, preferably hinged parts, which can be opened to gain access to the so-contained garment, the wall of at least one of the separable parts being shaped to complement the shape of
20 the garment.

In a preferred feature, the container is shaped to be stackable. Preferably the container has an area designated to hold the releasable cover when the garment is being worn.

Preferably the covers include a finger tab and a wall of the package includes a socket to receive the tab and thereby retain the covers at the designated area.

In a preferred feature at least one separable part includes a shoulder to restrict movement of the garment within the container.

In order that the invention may be well understood it will now be described by way of example only with reference to the accompanying diagrammatic drawings in which:

10 Figure 1 is an elevation from the inside of a bikini top of the invention with one adhesive cover in place, the left hand cover as seen, having been removed;

Figure 2 is an end view of one end of the bikini top of Figure 1 drawn to an enlarged scale, and taken from arrow A, parts having been removed;

15 Figure 3 is a plan view of a package comprising a container containing a top according to Figure 1 and 2 in a closed condition; and

Figure 4 is plan view of the package of Figure 3 in an open condition.

Referring to Figures 1 and 2, a bikini top T comprises a laminate formed of an outer layer 1, an infill 2 and an inner layer 3 which is to contact the skin of the wearer. The layers 1 and 3 can each be a multi-directional stretch fabric made of spandex or a modified spandex (e.g. a polyester-modified spandex or a blend of spandex and polypropylene fibres) or another heat stretchable polymer. The infill 2 is a foam, such a polyurethane, polyurethane-ether, polyurethane-ester or neoprene foam.

25 The layers 2,3 are flame laminated or otherwise secured together and this will leave a peripheral thin or feather edge on the outer layer 1 and/or the inner layer 3; these

are sealed at 4, e.g. ultrasonically welded, to conceal the otherwise exposed periphery of the foam layer 2. In this way the top T is a single piece, seamless, sealed, all fabric article having an attractive appearance. The top T has two end portions 5 and two breast cups 6 separated by a small bridge 6a.

5

A rectangular thick layer of a hypoallergenic hydrogel adhesive H is located on and directly secured to the inner surface of each end portion 5. The hydrogel adhesive H may be formulated to bond to the surface of the fabric and be permanently secured thereto. The layer is covered by a releasable cover 7 which has a corner
10 tab 8.

A suitable dermal adhesive is one comprising an organic polymer plasticised with a polyhydric alcohol, the polymer being derived from a monomeric mixture comprising acrylic acid, glycolvinylether and a cross-linking agent. The adhesive is disposed on
15 one side of a membrane, the other side of the membrane carrying an adhesive to permanently secure the membrane to the ends of the top T. A suitable adhesive is supplied by Axelgaard Manufacturing Company Limited of California, United States and is disclosed in WO 2004/029169 or US 6767632 (the entire disclosure of both of which are herein incorporated by reference).

20

Other hydrogels which are also suitable may be supplied by First Water Limited of Marlborough, United Kingdom, for example the hydrogel disclosed in WO 00/65143 (the entire disclosure of which is herein incorporated by reference). Other hydrogels which are used in medical and other applications may also be used (for example,
25 those used to adhere electrodes to skin may be formulated for use in this application).

The top T is packaged in a moulded plastics or container C shown in Figures 3 and 4. This consists of two halves 20,21 joined together by living hinges 22 or the like. Each half 20, 21 has a Euro hole 23 at one end thereof (the top as shown) so that
5 the package can be suspended from a hook, not shown, in a retail outlet or hand carried by the user, e.g. to a beach. The halves 20, 21 are moulded to define compartments 24 of a shape to receive the breast cups 6 of the top T. One half 20 has a shoulder 25 between the cups 6 to hold the top T in place. An area 26 is present to hold the covers 7 when the top T is worn, and has a slit 27 to receive the
10 tabs 8.

When a wearer wants to use the top T they open the container C and remove the top T. The covers 7 are removed and placed on the designated area 26 in the container C. The wearer then simply places the cups 6 on her chest, over the
15 bosom area and presses the end portions 5, adhesive side facing the body, to the flesh. The top T is elegant and there is no visible support means. The wearer can wear the top T for tanning, on the beach or at another location. When the wearer wishes to change back to usual dress, the reverse steps are taken. The carrier C can be held vertically on a hook in storage or hand carried upright to the beach or
20 pool. The adhesive H is kept free of dust or other contamination by the cover 7 which being in the carrier C is always to hand.

In trials, a wearer has been able to apply a top T, remove it and re-apply it over fifteen times, each period of wearing lasting for over one hour.

The top T can be worn when sunbathing or can be worn under clothing where, for example, a backless and/or strapless brassiere is desired.

The invention is not limited to the embodiment shown. The top T may carry further
5 decoration and/or embellishment. The top T need not be configured as shown in Figure 2. The carrier C may have a zip or like seal.